

Technical Data Report

Review

Prepared by Pawel Wiatrak, Ph.D.
Director of Technical Services

Evaluation of NUTRIPLANT™ SD Application on Production of Irrigated Soybeans

Objective

The objective of the study was to determine the effects of Nutriplant SD on production of irrigated soybeans.

Materials and Methods

Field trials were conducted on irrigated soybeans (*Glycine max* L.) of maturity groups 2.5 to 2.8 at the independently owned and operated agricultural research facility, Irrigation Research Foundation, at Yuma, Colorado, USA under the supervision of Colorado State University. Trials were conducted in the years of 1999, 2002, 2003 and 2004. Treatments consisted of 1) untreated control and 2) Nutriplant SD seed treatment applied at 250 g/100 kg (4 oz/100 lb) of seeds at planting. Nutriplant SD was applied directly to the seed by thoroughly mixing seeds with the product. Planting population was 555,975 seeds/ha (225,000 seeds/acre). Asgrow 3303 soybean variety was planted in 1999. Test plots consisted of four rows, each 76 cm (30 inches) wide and 198 meters (650 feet) long. Two uniform plots were selected each year for the trial, one for the control the other for the treatment except in 1999 when the control and treatment plots were replicated three times. Control and the treated soybeans were planted on 4 June in 1999, 15 May in 2002, 15 May in 2003 and 17 May in 2004. In 1999, plots were fertilized with starter fertilizer 25-10-0 applied at 74.7 l/ha (8 gal/acre) on 4 June. In 2002, starter fertilizer consisting of 43% of 10-34-0, 21% of 12-0-26 and 36% of 32-0-0 was applied at a rate of 75 l/acre (8 gal/acre) on 15 May 2002. In 2003, plots were fertilized with 157 kg/ha (140 lb/acre) of nitrogen in the form of urea on 19 February and Kugler 555 starter fertilizer at 75 l/ha (8 gal/acre) on 15 May. In 2004, starter 5-50-5 fertilizer was applied at 75 l/ha (8 gal/acre) on 17 May. Weed control in 1999 consisted of applying Roundup Ultra at 2.3 l/ha (32 fl oz/acre) with ammonium sulfate (AMS) at 2 kg/100 l (17 lb/100 gal) of water on 2 and 27 July. Weed control for the other three years was the same and consisted of Roundup Ultra Max at 1.9 l/ha (26 fl oz/acre) with AMS at 2 kg/ha (17 lb/100 gal) of water applied on 3 and 12 June in 2002, 10 June and 20 July in 2003, and 10 June and 2 August in 2004. Asana XL insecticide was applied at 0.4 l/ha (6 fl oz/acre) on 8 June in 1999. Other cultural practices, including irrigation and pest management followed local practices and were the same for treated and untreated plots. Soybeans were harvested on 15 October in 1999, 30 September in 2002, 25 September in 2003, and 25 October in 2004. At harvest, soybean yield was determined and adjusted to 13% moisture. Unit conversions were calculated using USDA Conversion Factors and Tables posted at: <http://www.mn.nrcs.usda.gov/technical/ecs/nutrient/planning/planning.htm>.

Results

Application of Nutriplant SD to the seeds at planting increased soybean yields by 175 kg/ha (2.6 bu/acre) in 1999, 73 kg/ha (1.1 bu/acre) in 2002, 262 kg/ha (3.9 bu/acre) in 2003, and 208 kg/ha (3.1 bu/acre) in 2004 (Table 1). On average across years, Nutriplant SD improved soybean yields by 180 kg/ha (2.7 bu/acre) compared to the untreated control. The highest yield increase of 7.1% was obtained

in 2004 when crop was exposed to four hail storms during growing season (10 May, 20 June, 2 July and 15 July) suggesting that Nutriplant SD helped to develop stronger plants which were more resistant to adverse weather conditions.

Table 1. Effects of Nutriplant SD applied to the seeds at planting on soybean yields. Irrigation Research Foundation, Yuma, Colorado, USA.

Year	Control		Nutriplant SD		Difference		
	(kg/ha)	(bu/acre)	(kg/ha)	(bu/acre)	(kg/ha)	(bu/acre)	(%)
1999	3501	52.1	3676	54.7	175	2.6	5.0
2002	4476	66.6	4549	67.7	73	1.1	1.6
2003	4234	63.0	4496	66.9	262	3.9	6.2
2004	2930	43.6	3138	46.7	208	3.1	7.1
<i>Mean</i>	<i>3785</i>	<i>56.3</i>	<i>3965</i>	<i>59.0</i>	<i>180</i>	<i>2.7</i>	<i>5.0</i>

**One bushel (bu) of soybeans equals 60 lb at 13% moisture*

Conclusions

Compared to the untreated control, the application of Nutriplant SD increased soybean yields by an average of 5%. The highest increase in soybean yields with Nutriplant SD application to seeds was 7.1 and 6.2% in 2004 and 2003, respectively.

References

- SBEAUSCO9901
- SBEAUSCO9902
- SBEAUSCO0201
- SBEAUSCO0301
- SBEAUSCO0401